What is claimed is:

1. An electrode made of carbon nanotubes or carbon nanofibers, comprising:

a current collector,

carbon nanotubes or carbon nanofibers, and

sulfur or metal nanoparticles as a binder,

wherein the sulfur or metal nanoparticles are bonded, deposited, or fused on the surfaces of the carbon nanotubes or carbon nanofibers so that the carbon nanotubes or nanofibers are bonded to each other and also bonded to the current collector.

2. The electrode according to claim 1, wherein the amount of the sulfur or metal nanoparticles used as the binder is in the range of from 0.01 to 3 times with respect to the amount by weight of the carbon nanotubes or carbon nanofibers.

3. The electrode according to claim 1, wherein the metal forming the metal nanoparticles is selected from the group consisting of alkali metals, alkaline earth metals, representative metals and transition metals

4. The electrode according to claim 1, wherein the metal nanoparticles comprise a material selected from the group consisting of metal itself, metal sulfides, metal carbides, metal oxides and metal nitrides.

5. The electrode according to claim 1, wherein the sulfur or metal nanoparticles have an average particle size of 1 μm or less.

6. The electrode according to claim 1, wherein the current collector comprises a metallic material as the main constituent and has a shape selected from plate, network and foam.

7. The electrode according to claim 1, wherein the sulfur or metal nanoparticles are chemically bonded or physically deposited or fused on the carbon nanotubes or

carbon nanofibers by pressing under a pressure of from 1 to 500 atm or by heat-treating at a temperature in the range of the melting point of the sulfur, metals or metal compounds ± 500 °C in an inert gas atmosphere.

8. A process for preparing a carbon nanotube or carbon nanofiber electrode, comprising the steps of:

(1) preparing an electrode material by mixing the carbon nanotubes or carbon nanofibers with a binder such as sulfur or metal nanoparticles or by depositing the sulfur or metal nanoparticles on the carbon nanotubes or carbon nanofibers;

(2) preparing a pressed electrode material by first pressing the electrode material; and

(3) subsequently pressing or heat-treating the previously pressed electrode material that is placed on the current collector so that the carbon nanotubes or nanofibers are bonded to each other and simultaneously bonded to the current collector.

9. The process according to claim 8, wherein in step (2), the electrode material is uniformly dispersed on the current collector and then pressed, or simultaneously dispersed and pressed.

10. The process according to claim 8, wherein in step (2), the sulfur or metal nanoparticles are pressed under a pressure of from 1 to 500 atm.

11. The process according to claim 8, wherein in step (3), the sulfur or metal nanoparticles are pressed under a pressure of from 1 to 500 atm or heat-treated at a temperature in the range of the melting point of the metals or metal compounds ± 500 °C in an inert gas atmosphere.

12. The process according to claim 8, wherein in step of (1), the mixing of the carbon nanotubes or carbon nanofibers with the sulfur or metal nanoparticles is

performed by a method chosen from the group consisting of physical mixing, ultrasonic-mixing, solvent-mixing, and uniformly dispersing the sulfur or metal nanoparticles on the surfaces of the carbon nanotubes or carbon nanofibers.

13. The process according to claim 12, wherein the method of uniformly dispersing the sulfur or metal nanoparticles on the surfaces of the carbon nanotubes or carbon nanofibers is carried out by a method selected from the group consisting of catalytic impregnation followed by an optional oxidation or reduction, precipitation, chemical vapor deposition (CVD), electrodeposition, plasma spraying, and sputtering.

14. The process according to claim 8, wherein the primary pressing in step (2) provides the electrode material in the shape of a disk or thin film.

15. The process according to claim 8, wherein in step (3), the pressing and the heat-treatment are carried out simultaneously or consecutively.

16. The process according to claim 8, wherein in step (3), the heat- treatment is carried out by a heating method selected from the group of thermal heating, chemical vapor deposition, plasma heating, RF (radio frequency) heating, and microwave heating.

17. An electric double layer capacitor comprising the carbon nanotube or carbon nanofiber electrode according to claim 1.

18. An electric double layer capacitor comprising the carbon nanotube or carbon nanofiber electrode prepared according to the process of claim 8.

19. A secondary battery comprising the carbon nanotube or carbon nanofiber electrode according to claim 1.

20. A secondary battery comprising the carbon nanotube or carbon nanofiber electrode prepared according to the process of claim 8.

21. A fuel cell comprising the carbon nanotube or carbon nanofiber electrode according to claim 1.

22. A fuel cell comprising the carbon nanotube or carbon nanofiber electrode prepared according to the process of claim 8.